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NEWS AND NOTES

A new tropical laboratory for botanical and zoological research is soon to be established at Mayagüez, Porto Rico, with Dr. F. L. Stevens as director.

F. Guéguen, in *Comptes Rendus,* suggests that certain bodies found on the hyphae of a new species of Mucor are organs for the elimination of metabolic products.

In Publication 1 of the Botanical Society of Western Pennsylvania, D. R. Sumstine gives a list of eighty of the more conspicuous fungi collected within the limits of Pittsburg.

An article on nut diseases, by M. B. Waite (Proc. Am. Pomol. Soc. 182–190. 1911), treats several serious diseases of nut-bearing trees and suggests methods of control. Diseases of the pecan receive special attention.

Dr. P. Spaulding, of the division of Forest Pathology at Washington, has published a bulletin dealing in a very thorough manner with the life history of *Lenzites sepiaria* and its effects on timber. Under preventive measures, he recommends seasoning, floating, and infiltration with poisonous chemicals.

Dr. C. H. Kauffman has published in the Thirteenth Report of the Michigan Academy of Science, 1911, some very useful keys to the common genera of basidiomycetes and ascomycetes. His list of unreported Michigan fungi is also continued as in previous years.

The leaf-spot of orchids (*Hypodermium*), which begins at the apex of the leaf and gradually works downward until the entire leaf is killed, may be checked, according to F. T. Brooks, by sponging the leaves with a dilute solution of potassium permanganate.

Mr. J. B. Rorer, mycologist of the Board of Agriculture, Trinidad, recently published an attractive illustrated annual report, treating several important tropical plant diseases and containing a preliminary list of Trinidad fungi, to which additions will be made from year to year.

An extremely handy volume by A. D. Selby on plant diseases, consisting of a general treatment, a special part on Ohio plant diseases, and a classified bibliography, has just come to us as Bulletin 214 of the Ohio Agricultural Experiment Station.

The commonest cause of the production of cancerous swellings known as "burs" on the trunks of rubber-trees (*Hevea*) in the Federated Malay States, according to Bancroft, is the wounding of the cortex by cart wheels and in other mechanical ways. Another cause seems to be the irritation from buds failing to develop into shoots. In this connection, the effect of insect work on the trunks of various trees might be investigated.

Professor J. C. Arthur and Dr. F. D. Kern spent the first week in January at the Garden consulting the mycological herbarium and library, and reading the final proof sheets of their next contribution to the literature of plant rusts, shortly to appear as volume 7, part 3, of NORTH AMERICAN FLORA.

The meeting of the various scientific societies of the country at Washington during Christmas week was a notable one and well attended. The botanists had very full programs, as well as a dinner and a smoker, in which between one hundred and two hundred took part. The Garden was represented by Dr. N. L. Britton, Dr. W. A. Murrill, Professor R. A. Harper, and Mr. A. B. Stout. A movement to unite all American botanical associations under the Botanical Society of America was auspiciously inaugurated. The next meeting of the societies will be held in Cleveland; and the one following in Atlanta.

The pathological exhibits at the Washington Meeting were of great interest, and the room was an excellent meeting-place for botanists of all classes. The tables and walls were filled with specimens, cultures, charts, photographs, and colored drawings. Undoubtedly, this feature will require next year a larger room, with more chairs and tables, for the use of those desiring to make a careful study of the exhibits. It will also, let us hope, have a central location as it did this year, and be freely used by botanists at all times while the meeting is in progress.

The Swedish mycological Nestor, Professor Doctor Hampus von Post, died at Upsala, August 16, 1911, nearly 89 years of age. As is well known, he was one of the most diligent and assiduous contributors of Elias Fries. Not a few of the new species described in Fries' later works were detected and distinguished by him, and quite a number of Fries' Icones, both published and unpublished, were originally drawn by this "felicissimus fungorum investigator," who continued every year, even after Fries' death, and as long as his health and energy permitted, to collect, describe and illustrate species, varieties, and forms of the fungi growing around the agricultural college of Ultuna, where he was engaged during about 30 years. This accumulated work, of which nothing has been published since long ago, will no doubt be of great interest to those who have to deal with the Swedish fungous flora and will probably be adapted to throw light upon some of the problems which hitherto have remained unsolved.—*L. Romell.*

Notes on Some Papers Presented at the Washington Meeting, December 28 and 29, 1911

"Preliminary notes on a twig-blight of *Quercus Prinus*," by Della Ingram. This is due to a fungus producing pycnidia on the dead leaves and showing the *Macrophoma* type of spores. It also attacks white oak and chestnut to some extent. The disease has been found in Connecticut, Pennsylvania, Maryland, and Virginia.

"Large leaf-spot of chestnut and oak," by A. H. Graves. A new leaf-spot, different from the common one caused by *Septoria ochroleuca,* has been found on chestnut and red oak in the entire south Appalachian region and also in Delaware. The spots, which begin to appear in August, are often an inch or more in diameter, and show concentric rings. Forty per cent. of the leaves are killed at times. Professor Farlow thinks the fungus is *Monochaetia Desmazierii* Sacc.

"Notes on *Cronartium ribicola,*" by P. Spaulding. The teleutospores develop in the cool weather of autumn. Inoculations have been successfully made through the different hosts. No single inspection will remove all infected trees. If this disease is present, it will save expense to destroy all affected trees at once.

"An edible smut," by Mrs. Flora W. Patterson. Under this title, *Ustilago esculenta* P. Henn., on *Zizania latifolia,* was exhibited and described. Corn smut is used in large quantities in Mexico City as an article of food. A smut on sorghum is also edible..

"The potato *Fusarium* situation in Europe and America," by W. A. Orton. The speaker described three diseases involved: a wilt due to a species of *Verticillium,* a wilt due to *Fusarium oxysporium,* and another disease apparently physiological and very imperfectly known.

"The method of distribution of the olive knot disease," by Horne, Parker, and Daines. Experiments were conducted at Fair Oaks, California. Slime from knots caused new knots on inoculation. The causative organism is *Bacterium Savastanoi* E. F. Smith. It is distributed on the feet of birds, and may enter leaf-scars, cracks, wound callouses, and other rough places on the trunk. Smooth-barked varieties are therefore less subject to the disease.

"Notes on some diseased trees in our national forests," by G. G. Hedgcock. Large additions were made to the hosts and distribution of many of the larger tree-destroying fungi, such as *Inonotus dryophilus, I. texanus, Pyropolyporus Everhartii, P.*

igniarius, Fomes Laricis, F. fraxinophilus, Elfvingia fasciata, and *Porodaedalea Pini.*

"Silver leaf, a disease of fruit trees," by H. T. Güssow. This disease exists from one end of Canada to the other, as well as in many parts of Europe. It is caused by *Stereum purpureum,* acting within the trunk and branches, and is probably distributed by the transportation of lumps of mycelium from one tree to another during the process of cultivation.

"Observations on the deterioration and utilization of fire-killed timber in the Northwest," by J. R. Weir. The rots of coniferous timber were chiefly discussed. The blue-staining fungus is very important in burned trunks. If the sap was ascending when the fire occurred, there is more food and more rapid fungous growth. Standing trunks have more water, which prevents access of air and consequently retards fungous attack. The reason why few fungi are found on badly burned logs is due to the fact that the organic food substances are disorganized by the intense heat. Fires are often good for forests, ridding them of fungous pests. In places on the west of the continental divide, fungous infections sometimes totalled fifty per cent. or more.

"The use of soil fungicides to prevent damping off," by Carl Hartley. For coniferous seed-beds in sandy soil, apply three-sixteenths of a fluid ounce of commercial sulfuric acid in water to a square foot of surface, and water the beds twice a day during the germination period to prevent injury from the acid. This treatment does not apply to angiosperms. Pure acid is four times as effective as commercial.

"The relative merits of lime-sulphur, lead benzoate, and Bordeaux mixture for spraying potatoes," by F. C. Stewart and G. T. French. Bordeaux mixture was found to be by far the best, preserving the foliage, prolonging the life of the plant, and greatly increasing the yield. Lime-sulphur showed a dwarfing, rather than a stimulating effect; and lead benzoate had little or no effect.

"Some wood preservations, with special reference to their toxic properties," by C. J. Humphrey. Creosote is being thoroughly investigated at present, cultures of *Fomes annosus* being used to determine its toxic effects. Of the five fractions in creosote, the middle ones are by far the most toxic. Common salt is an excellent preservative for inside timbers, where leaching is impossible.

"Experiments in the use of asphaltum and other substances as dressings for wounds of trees," by John Boddy. Lead paint has been tried thoroughly and found unsatisfactory unless applied at least once a year. Coal tar, the substance most used at present, has a caustic effect on the cambium and is also less durable than supposed. Asphaltum, or pure bitumen, derived from petroleum, is the very best dressing for trees of all kinds. It is applied hot from a kettle, as in the case of street-paving.

"The importance of sanitation in the control of certain plant diseases," by L. R. Jones. It is possible that we depend too much on spraying, to the neglect of sanitation. Diseases of cabbage were used in illustration. If the "yellows" (*Fusarium*) appears in a field, it rots all the heads and there is no chance of growing cabbage in that field even six years afterwards. The only hope is in one variety which appears resistant. Another field may show only "wilt" (*Phoma*), and still another only the common "black rot." Each disease is introduced locally and remains. Fields must be kept free of these diseases, and change of crops must be resorted to if necessary.

"The effect of *Gymnosporangium* upon the transpiration and photosynthesis of apple leaves," by H. S. Reed and J. S. Cooley. The authors reported quantitative experiments upon the transpiration and photosynthesis of healthy and diseased leaves. Transpiration records were taken in the field and photosynthesis records were taken in the laboratory by use of Ganong's photosynthometer. Both agreed in showing diminished activity on diseased leaves.

"The toxicity of plant acids and enzymes," by M. T. Cook and J. J. Taubenhaus. Laboratory experiments with picked fruits are not conclusive, owing to the fact that the enzymes which guard against fungi in the field may die after picking. For example, pears may contain living enzymes 45 days after picking, while in apples the death of the protecting enzymes may occur much sooner.

"A study of protoplasmic movements in fungi," by F. M. Andrews. The slow oscillations of the protoplasm in the aerial filaments of certain moulds grown in gelatin cultures were subjected to variations in heat and light and the influence of various gases and solutions. The transpiration optimum was found to be 23–26° C. Pure hydrogen gas, cold, darkness, glycerin solution, etc., caused the movements to gradually cease.

"Cardinal temperatures for germination of uredospores of cereal rusts," by E. C. Johnson. The optimum for *Puccinia graminis* and five other species was found to be 12–17° C. Higher temperatures retarded germination, hence there is less development in spells of hot weather. Professor Arthur would like to know why teleutospores will not grow. Out of 137 species, material of which seemed to be in perfect condition, he succeeded during one season in germinating only 37 for purposes of inoculation.

W. A. Murrill.